IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

NCR Docket No. 10055

Application of:

REED, M.

Group Art Unit: 2167

Serial No. 10/002,795

Examiner: Mohammad Ali

Filed: November 15, 2001

For: COMPRESSING DATA STORED IN A DATABASE SYSTEM

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF TRANSMITTAL LETTER

Sir:

Transmitted herewith for filing is an Appeal Brief to the Final Rejection dated January 6, 2005.

☒ Please charge Deposit Account No. 14 0225 for the Appeal Brief fee or any other fees associated with the filing of said Appeal Brief.

☒ Please charge any additional fees to the account of NCR Corporation, Deposit Account No. 14 0225.

Respectfully submitted,

John D. Cowart
Reg. No. 38,415

NCR Corporation
Dayton, Ohio
Tel. No. (858) 485-4903
Fax No. (858) 485-2581

CERTIFICATION OF MAILING UNDER 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 7/6/2005.

By: Sallie Spicer
Name: Sallie Spicer

AF
IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Docket No. 10055

Application of:

Michael L. Reed, *et al.* Group Art Unit: 2177

Serial No.: 10/002,795 Examiner: Ali, Mohammad

Filed: November 15, 2001

For: COMPRESSING DATA STORED IN A DATABASE SYSTEM

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

This is a brief in support of Applicant's appeal filed on May 6, 2005, in response to the final action of the Office, dated January 6, 2005, in this matter.

(1) REAL PARTY IN INTEREST

The real party in interest in this matter is NCR Corporation, Dayton, Ohio, by virtue of an assignment recorded at reel 12353, frame 855-857, on November 15, 2001.

(2) RELATED APPEALS AND INTERFERENCES

Applicant is aware of no active appeals or interferences related to this application.

(3) STATUS OF CLAIMS

Claims 1 through 37 are pending. All have been rejected and are under appeal. A listing of claims is attached as an appendix to this brief.

(4) STATUS OF AMENDMENTS

All amendments have been entered prior to appeal and are reflected in the listing of claims appended to this brief.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The subject matter of claim 1 and its dependents (2-12) includes a process for use in a database system (14 in Fig. 1) in which data is stored in a table (24 in Fig. 1) according to a user-defined data type (Fig. 2). (*See* Fig. 4; ¶¶ [0039] – [0040] of Applicant's disclosure.) At least one compression routine (200 in Fig. 3; ¶[0035]) is associated with the user-defined data type and is used to compress the data. (*See* Fig. 4; ¶[0040].)

The subject matter of claim 13 and its dependents (14-26) includes a computer program, claimed as an article comprising at least one storage medium containing computer-executable instructions. (*See* ¶¶[0044] – [0045].) When executed, the program causes a computer system to store data according to a user-

defined data type in a database system and to associate a compression routine with the user-defined data type for compressing the data. (Fig. 3; ¶[0035].)

The subject matter of claim 27 and its dependents (28-37) includes a database system having a storage system (24 in Fig. 1; ¶¶[0020] – [0021]) that stores a table (100 in Fig. 2) and a plurality of compression routines to apply respective different compression algorithms (Fig. 3; ¶[0026]). The database system also includes a controller (¶[0044]) that invokes one of the compression routines to compress data stored in the table.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The ground of rejection to be reviewed by the Board is whether claims 1-37 are unpatentable under 35 U.S.C. §103(a) in view of the combination of U.S. Patent 5,649,196 to Woodhill, *et al.*, and U.S. Patent 6,434,558 to MacLeod, *et al.*

(7) ARGUMENTS

Claims 1-26

The difference between the Office and Applicant with respect to claims 1-26 appears to be a simple one – disagreement on the meaning of the term "user-defined data type" (or "UDT") and whether the UDT appears in the Woodhill patent. Applicant maintains that Woodhill is devoid of any discussion whatsoever of user-defined data types. The Office continues to assert otherwise, suggesting that Woodhill's assignment of a "user-defined priority" to a file in a "Backup Queue Record" (*see* Woodhill, col. 6, lines 12-15) is equivalent to storing "data according to a user-defined data type," as claimed by Applicant. (*See* Office action dated January 6, 2005, page 2.)

Applicant sees no relationship between the "user-defined priority" that Woodhill assigns to files in his backup process and the "user-defined data type" claimed by Applicant. As pointed out in Applicant's previous replies, the term "user-defined data type" is one well understood in the database arena. Applicant's

specification describes a "user-defined data type" as "a data type used in the database system that can be created by a user, an application, a database management system, or another standard (other than the database query language standard)." (¶[0015].) Applicant specifically points out that "UDTs are contrasted with predefined or built-in data types, which have structures already defined by the standard database query language itself." (¶[0015].) In other words, the user-defined data type is a tool that allows the database user, application or management system to create a custom-defined data structure that differs from the data structures predefined by the database query-language standard (such as SQL) that is supported by the database system. Simply put, the UDT is a construct of the database world that just does not exist in Woodhill's system.

With this in mind, it is impossible that Woodhill could show or even suggest any one of the elements of Applicant's claims 1 and 13. In particular, Woodhill does not show or suggest storing "data according to a first user-defined data type," nor does he suggest associating "a first compression routine with the first user-defined data type" for use in compressing data of the first user-defined type.

MacLeod is also silent on the use of user-defined data types and, in particular, the association of compression algorithms with user-defined data types. Accordingly, claims 1 and 13, as well as all of the claims that depend from them, are patentable over the Woodhill and MacLeod references.

Claims 27-37

As pointed out in Applicant's previous reply (reply mailed April 6, 2005), the Woodhill and MacLeod patents, even when combined, do not show or suggest invoking "one of a plurality of compression routines to compress data stored in [a] table" in a database system, as claimed in Applicant's claim 27. Applicant has conceded that Woodhill mentions data compression in a particular type of computer system and that MacLeod describes a database system having relational

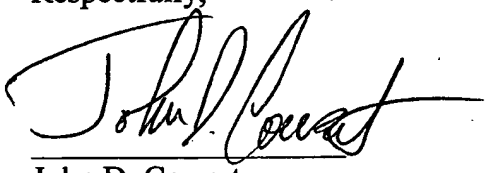
tables, but Applicant finds no suggestion in either of the references or in the art in general that the teachings of these references should or even could be combined. Nothing in the Woodhill patent suggests the use of compression techniques in a relational database system, and nothing in MacLeod suggests the use of relational tables with a data-compression scheme like that described by Woodhill. Absent Applicant's own disclosure, no person of ordinary skill in the art would have considered attempting to combine Woodhill's teachings on compression with the relational database tables of MacLeod. Accordingly, claim 27 and all of the claims that depend from it are patentable over these references.

(9) CONCLUSION

The references cited by the Office, even when taken together, do not show or suggest all of the limitations of any of the claims. The claims are therefore allowable over the art of record. Applicant therefore asks the Board to reverse the rejections and allow all of the claims.

Please apply any charges or credits that might be due, except the issue fee, to Deposit Account 14-0225.

Respectfully,



John D. Cowart
Reg. No. 38, 415

NCR Corporation
1700 South Patterson Blvd.
Dayton, Ohio 45479

Tel. No. (858) 485-4903
Fax No. (858) 485-2581

CLAIMS APPENDIX

1. (Original) A process for use in a database system, comprising:

storing data according to a first user-defined data type in a table;

associating at least a first compression routine with the first user-defined data type; and

using the first compression routine to compress the data according to the first user-defined data type.

2. (Original) The process of claim 1, further comprising using a second compression routine to compress the data to improve compression efficiency.

3. (Original) The process of claim 2, wherein using the first and second compression routines comprises using user-defined data type methods.

4. (Original) The process of claim 3, wherein using the user-defined data type methods comprises using methods built in with the first user-defined data type.

5. (Original) The process of claim 1, wherein using the first compression routine comprises using a first compression method built in with the first user-defined data type.

6. (Original) The process of claim 5, further comprising providing a user-defined method executable to invoke the first compression method.

7. (Original) The process of claim 6, further comprising invoking the user-defined method to invoke a second compression method built in with the first user-defined data type.

8. (Original) The process of claim 7, wherein invoking the user-defined method comprises invoking the user-defined method to alter compression efficiency.

9. (Original) The process of claim 1, further comprising providing a second user-defined data type built upon the first user-defined data type.

10. (Original) The process of claim 9, further comprising storing a first type of data using the first user-defined data type and storing a second type of data using the second user-defined data type.

11. (Original) The process of claim 10, further comprising using a second compression routine to compress the second type of data.

12. (Original) The process of claim 9, further comprising inheriting at least a data structure and at least a built-in method from the first user-defined data type into the second user-defined data type.

13. (Once amended) An article comprising at least one storage medium containing instructions that when executed cause a system to:

store data according to a first user-defined data type in a database system; and

associate a first compression routine with the first user-defined data type for compressing the data.

14. (Original) The article of claim 13, wherein the instructions when executed cause the system to associate a second compression routine with the first user-defined data type, the first and second compression routines providing different compression algorithms.

15. (Original) The article of claim 14, wherein the instructions when executed cause the system to provide the first compression routine as a method built in with the first user-defined data type.

16. (Original) The article of claim 15, wherein the instructions when executed cause the system to provide the second compression routine as a method built in with the first user-defined data type.

17. (Original) The article of claim 13, wherein the instructions when executed cause the system to associated a first data structure with the first user-defined data type, the first data structure to indicate a type of compression applied on a data object.

18. (Original) The article of claim 17, wherein the instructions when executed cause the system to associate a second data structure with the first user-defined data type, the second data structure to indicate a percentage amount of compression of the data object.

19. (Original) The article of claim 18, wherein the instructions when executed cause the system to access the first and second data structures of the data object when accessing the data object.

20. (Original) The article of claim 19, wherein the instructions when executed cause the system to store the data object in a relational table.

21. (Original) The article of claim 19, wherein the instructions when executed cause the system to store the data object in a relational table distributed across multiple access modules.

22. (Original) The article of claim 20, wherein the instructions when executed cause the system to provide a second user-defined data type built upon the first user-defined data type.

23. (Original) The article of claim 13, wherein the instructions when executed cause the system to provide a second user-defined data type built upon the first user-defined data type.

24. (Original) The article of claim 23, wherein the instructions when executed cause the system to inherit the first compression routine from the first user-defined data type into the second user-defined data type.

25. (Original) The article of claim 24, wherein the instructions when executed cause the system to:

associate a second compression routine with the first user-defined data type; and

inherit the second compression routine from the first user-defined data type into the second user-defined data type.

26. (Original) The article of claim 25, wherein the instructions when executed cause the system to:

store a first type of data using the first user-defined data type; and

store a second type of data using the second user-defined data type.

27. (Original) A database system, comprising:

a storage system to store at least a table;

a plurality of compression routines to apply respective different compression algorithms; and

a controller adapted to invoke one of plurality of compression routines to compress data stored in the table.

28. (Original) The database system of claim 27, wherein the table includes a relational table and the data is stored in a first attribute of the relational table.

29. (Original) The database system of claim 28, wherein the first attribute is according to a first user-defined data type.

30. (Original) The database system of claim 29, wherein the plurality of compression routines are methods built in with the first user-defined data type.

31. (Original) The database system of claim 30, the storage system to store a second table having a second attribute according to a second user-defined data type built upon the first user-defined data type.

32. (Original) The database system of claim 27, wherein the controller is adapted to invoke another one of the compression routines to alter compression of the data.

33. (Original) The database system of claim 32, wherein the controller is adapted to invoke another one of the compression routines in response to a Structured Query Language UPDATE statement.

34. (Original) The database system of claim 33, wherein the controller comprises a user-defined method.

35. (Original) The database system of claim 34, wherein the plurality of compression routines comprise methods built in with the first user-defined data type,

the user-defined method executable to invoke the methods built in with the first user-defined data type.

36. (Original) The database system of claim 27, further comprising a plurality of access modules adapted to manage access to respective portions of the storage system.

37. (Original) The database system of claim 36, wherein the table is distributed across multiple access modules.